Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

But even proceeding on this assumption it would seem necessary somewhere in the course of the argument to dispose of the pragmatists' contention that between pragmatism and the mysticism, voluntarism and intuitionism of previous anti-intellectualisms there is this important difference: these anti-intellectualisms not only retained but were based upon the intellectualistic conception of the intellect, viz., that it is a self-enclosed function, quite independent in its operation of the other functions. For mysticism, voluntarism, etc., are all attempts to escape the difficulties of a segregated intellect by substituting an equally segregated will or feeling or intuition. Pragmatism on the other hand has tried to maintain some kind of organic connection between intelligence and the other functions.

But the author is either unaware of, or ignores all this. Nor does he come to close quarters with the problems which have been acute in the English and American discussion. There is frequent appeal to 'necessity' and 'consistency' without sufficient criticism of these concepts. The laws of number and of pure geometry are regarded as 'necessary laws of the movement of thought.' But applied mathematics, which is the realm within which the scientific pragmatism represented by Poincaré plays its rôle, is experimental and has only a 'limited necessity.'

The most general form of the author's indictment of pragmatism is that it ignores and consequently confuses and confounds the distinction between psychological and logical necessity. Here again no account is taken of the extended discussion of this point which has gone on from the beginning of the movement.

Perhaps some of the neglected issues are reserved for another volume which is to follow. But it is difficult to see how any one who has followed closely the discussions of pragmatism during the last ten years could proceed on assumptions which have been constantly in question in these debates without more recognition, if only in footnotes, of the unsettled status of these presuppositions than is given by M. Berthelot.

ADDISON W. MOORE.

THE UNIVERSITY OF CHICAGO.

Natural Philosophy. By WILHELM OSTWALD. Translated by THOMAS SELTZER. New York, Henry Holt & Co., 1910.—pp. ix, 193.

The original book of which the work under consideration is an excellent translation appeared as Vol. I in Reclam's *Bücher der Naturwissenschaft.* The author holds that "natural philosophy is not only concerned with the question of the mutual connection of *all* physical relations, but also endeavors to include in the sphere of its study chemical, biological, astronomical, in short, all known phenomena" (p. 1). All scientific investigation needs natural philosophy as a background so that the interconnection and relative value of scientific facts may not be overlooked.

Science begins with the formation of the *concept;* this is based upon the physiological retention of similar experiences. These concepts, through association and emphasis of similarities and differences, become the bases for conclusions and predictions—the latter, the main function of science. But there are always extraneous elements present due to necessarily limited observation, and so the natural law which emerges is valid for "ideal cases" rather than for the particular phenomena of observation. In his own words: "A series of instances are investigated which are so adjusted that the influence of the extraneous grows less and less. Then the relation investigated approaches a limit which is never quite reached, but to which it draws nearer and nearer, the less the influence of the extraneous elements. And the conclusion is drawn that if it were possible to exclude the extraneous elements entirely, the limit of the relation would be reached. . . . We here confront the fact that many natural laws, and among them the most important, are expressed as, and taken to be, conditions which never occur in reality." [1]

The correspondence between "ideal cases" and phenomena becomes closer according as the inner interconnection and continuity of phenomena becomes known. Consequently, the various sciences will be found to have an organic and developmental connection, and so may be put in systematic arrangement. And here he reaches what proves to be the core of the work—a classification of the sciences. The following classification, like that of Comte, is made on the basis of a progressive development.

I. *Formal Sciences.* Main concept: order. Logic, or the science of the Manifold; Mathematics, or the science of Quantity; Geometry, or the science of Space; Phoronomy, or the Science of Motion;

II. *Physical Sciences.* Main concept: energy. Mechanics, Physics, Chemistry.

III. *Biological Sciences.* Main concept: life. Physiology, Psychology, Sociology.

"The formal sciences treat of characteristics belonging to all experiences, characteristics, consequently, that enter into every known phase of life, and so affect science in the broadest sense" (p. 55). Formal is not used here in the Kantian sense, for the formal sciences are just as experiential and empirical as the other two groups. On account of their breadth and the fact that they are the most general of all experiences, it is often forgotten that we are dealing with experiences at all and they are thought to be "native qualities of the mind, or apriori judgments." The main concept of the second group, the physical sciences, is energy—a concept which does not appear in the formal sciences. The inclusion of chemistry in this group is defended on the ground that the special science of physical chemistry, which has been developed as such during the last twenty years, forms a transitional science between physics and chemistry. Under the third group—the biological sciences—fall all the relations of living beings. Physiology is here defined as "the entire science dealing with non-psychic phenomena" (p. 56).

These sciences here classified are put into a regular hierarchy because the concepts that have been dealt with in the preceding sciences are used or involved in the succeeding sciences, while certain characteristic new concepts are added. Furthermore, jurisprudence, astronomy and medicine are not included in the classification, for they are *applied* sciences and "do not unfold their problems systematically, but are assigned them by the external circumstance of man's life."

---

[1] Page 46.

The chapters following are devoted to the exposition of how the dominant concepts of the pure sciences of the hierarchy bear a functional relation to each other.

PHILIP H. FOGEL.

PRINCETON UNIVERSITY.

Le travail d'idéation. Hypothèses sur les réactions centrales dans les phénomènes mentaux. Par EDME TASSY. Paris, Félix Alcan, 1911.—pp. 316.

The author undertakes to inquire into the concrete genesis of the ideational material, by analyzing its relation to the groups of histological elements and the psycho-neurological factors determining the nature of its development. On the basis of this analysis he advances a theory of 'ideative erethism,' as a substitute for the associationist theory, in so far as the latter touches upon the formation of ideas and the entire mechanism of reasoning (p. 19). This question concerning the formation of ideas is the capital one about mental life: the manner in which its progressive complexity is organized (p. 35). The character of this organization eludes us until we recognize the central reactions in mental phenomena as elements essential to the proper understanding of the latter. This does not mean that the formation of ideas is a merely histological matter; but it calls for a much closer analysis of the organic, emotive, and volitional,—the dynamic factors,—than is to be found in the static, structural theories of ideation.

Literary images are the more effective the more conditioned they are by a sense-analogy. The kinship of two ideas or two images results in their mutual reinforcement. The chance which a new idea has of incorporating itself in the mental life depends upon its capacity to gain a ready access, by emphasizing or calling forth the analogy between itself and the ideational material already acquired which it awakes to new life. The new idea, in making its way to a group of cells of 'composite specificity,' may qualitatively change the latter, but this re-formation would be impossible unless the two are analogous. The effect of an impression, 'exalted' by long duration, intensity, or repetition, may be so heightened as to spread itself over the whole field of consciousness; but if it is to take root and relate itself to the material already acquired, it must enter into groups possessing constitutive elements which are analogous to it. Again, two ideas, presented all at once, may cancel each other's effect; should they be analogous, however, they 'join hands' and are perceived coincidently. These three modes, stimulating mental activity,—the perceptible exaltation, coincidence, and re-formation of the thought-elements,—aid thought to affirm itself in its differentiation and to pass beyond the acquired differentiations in the acquisition of new ones (pp. 53, 310). This, in brief,